

Scenario: Type I DM

You work in the diabetes (DM) center at a large teaching hospital where you meet K.W. She is a 20-year-old Hispanic woman who was released from the hospital 2 days ago after being diagnosed with type 1 DM. Nine days ago, K.W. went to see the provider after a 1-month history of frequent urination, thirst, severe fatigue, blurred vision, and some burning and tingling in her feet. She attributed those symptoms to working long hours at the computer. Her random glucose level was 410 mg/dL (22.8 mmol/L). The next day her laboratory values were as follows: fasting glucose 335 mg/dL (18.6 mmol/L), A1C 8.8%, cholesterol 310 mg/dL (8.03 mmol/L), triglycerides 300 mg/dL (3.39 mmol/L), HDL 25 mg/dL (0.65 mmol/L), LDL 160 mg/dL (4.14 mmol/L), ratio 12.4, and creatinine 0.9 mg/dL (80.0 μmol/L). Her body mass index was 29.6 with a BP 160/96 mm Hg. She was admitted to the hospital for control of her glucose levels and the initiation of insulin therapy with carbohydrate (CHO) counting. After discharge, K.W. has been referred to you for diabetes education. You are to cover 4 areas: pharmacotherapy, glucose monitoring, basic nutrition therapy, and exercise.

1. What is the overall teaching goal with a patient newly diagnosed with type 1 DM?

An overall teaching goal for a patient with a new diagnosis of DM1 is that they will be able to show the proper way to check their glucose level before meals.

2. What assessments do you need to make before starting your session?

Before starting the session, you need to ask her prior knowledge of administering insulin and how to check her blood sugar, what her diet consists of now, and what her activity level is now.

3. K.W. was started on sliding scale lispro (Humalog) four times daily and glargine (Lantus) insulin at bedtime. What are the significant differences between the 2 therapies?

The difference between the Humalog and Lantus is how long it stays in the body. Humalog is rapid acting and lasts for about 3-4 hours, while Lantus lasts for about 24 hours and is long acting.

4. Outline important content to include about insulin therapy.

CLASS PREP: Endocrine

Important content to include is insulin administration, such as the injection site and how to inject it, the different kinds of insulin, and what it does in the body.

5. What specific points would you include about managing insulin therapy? **Select 5 options.**

- a. Store unopened insulin in the freezer.
- b. The insulin can be used if it is yellow but not expired.
- c. The fastest subcutaneous absorption is from the abdomen.
- d. Administer the lispro (Humalog) within 15 minutes of eating.
- e. Ideally, the glargine (Lantus) should be administered at bedtime.
- f. A prefilled syringe can be stored for 24 hours at room temperature.
- g. Always administer the injections in the same, easy-to-reach location.
- h. The current vial of lispro (Humalog) can be kept at room temperature for 1 month.
- i. Two injections will be needed to administer lispro (Humalog) and glargine (Lantus).

6. What is the best way to determine whether K.W. can safely self-administer insulin?

- a. Having her describe the process step-by-step
- b. Evaluating her A1C levels and daily glucose logs
- c. Observing her draw up and administer an insulin dose
- d. Asking her to rate her confidence in her ability to give a self-injection

7. Outline important content to review about glucose monitoring.

Wiping the first drop of blood off and using the second sample, and cleaning the finger with an alcohol pad before the prick.

CLASS PREP: Endocrine

8. K.W. states her diet is mostly fast foods. The foods she cooks at home are high in starch and fat. Her mealtimes often vary from day to day because of her work schedule. What is CHO counting? Why might this method work well for K.W.?

CHO counting keeping track of the number of carbs you eat to associate that with the number of units of insulin to give. For example, there will be a ratio of consumed carbs to insulin administration. This will work well with K.W because she can count carbs easily and be able to incorporate that in the plan of care of insulin admin.

9. Outline important points to cover about a basic nutrition plan with CHO counting.

Carbs and sugar increase blood glucose.

Eat fruits and vegetables, foods low in sodium

10. K.W. states that she currently does not exercise at all. What benefits will K.W. receive from taking part in an exercise program?

She will experience less neuropathy pain and lower her blood sugar due to the metabolization of the carbs

11. What do you need to teach K.W. about safe exercise?

Wear shoes that are comfortable, and do not exercise when feet are numb since this can contribute to falls

12. Describe 3 suggestion you can make to help her deal with her condition and follow the treatment plan.

Increase exercise, decrease fast food intake, monitor blood glucose level

13. What outcomes could you use to determine if your teaching with K.W. was effective?

Her a1C level decreases, and her blood sugar returns to being in the 100s rather than the 300-400s

CASE STUDY PROGRESS

K.W. calls the clinic several days later reporting that she has “the flu.” She has been nauseated and vomited once during the night. She has had 2 loose stools. She states that she does have a few chills and may have a low-grade fever but does not have a thermometer. She did not check her glucose level this morning or take her insulin because she has not eaten.

15. Based on these findings, you recognize that K.W. may be experiencing _____ hyperglycemia _____. The priority intervention is to _____ measure her glucose level_____.

Options for 1	Options for 2
hyperglycemia	administer the normal morning insulin dose
hypoglycemia	ingest a rapid acting carbohydrate
	measure her glucose level

Use an X to indicate whether the instructions below are Indicated (appropriate or necessary) or Contraindicated (could be harmful) for K.W. about managing illness and DM.

Instruction	Indicated	Contraindicated
a. Check glucose level every 2-3 hours throughout the day.	X	
b. Maintain strict NPO status		X
c. Use over-the-counter medications for symptom control.		X
d. Obtain a yearly influenza vaccine.		X
e. Take insulin as ordered; call back if there you have concerns so the HCP can adjust insulin doses	X	
f. Someone should be with her in case of an emergency.	X	